

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- 1 1. (Currently Amended) A method for optimizing traffic on a distributed
2 content delivery network, comprising:
3 receiving a request for content from a client at a directory server;
4 ~~identifying the client as a potential candidate server for the requested~~
5 ~~content;~~
6 ~~adding the client to a list of potential candidate servers;~~
7 determining if the client is a member of an arena in a list of arenas,
8 wherein an arena is a specified set of nodes on a network and at least one arena
9 has a plurality of nodes; and
10 if the client is a member of the arena, applying routing rules to the
11 delivery of content to the client,
12 wherein the routing rules correspond to the arena;
13 wherein the routing rules involve at least one of the following:
14 directing the client to available peers within one of a set of
15 match sets for the requested content, wherein a match set is a set of
16 network devices as defined by a system administrator;
17 when there are no peers with a copy of the requested
18 content in the match set, automatically directing the client to a next
19 match set in the set of match sets; and
20 directing the peer to the origin server;
21 wherein the order of precedence in which the client is directed to
22 nodes within a match set, to a next match set, as well as to the origin

23 server in the routing rules is specified in the routing rules corresponding to
24 each arena
25 ~~including routing rules specific to the arena.~~

1 2. (Original) The method of claim 1, further comprising defining an arena
2 by receiving input from a user and using the input to specify one or more edge
3 routers that surround nodes on the network that are members of the arena.

1 3. (Original) The method of claim 1, wherein after an arena is defined, a
2 node can be dynamically assigned to and removed from the arena as the node is
3 physically moved.

1 4. (Original) The method of claim 1, further comprising defining an arena
2 by receiving input from an administrator and using the input to specify a list of
3 addresses for nodes that comprise the arena.

1 5. (Original) The method of claim 1, wherein a routing rule can prohibit
2 traffic across a specific network link.

1 6. (Original) The method of claim 1, wherein a routing rule can prohibit
2 traffic across a specific network link when the network link reaches a
3 predetermined utilization.

1 7. (Original) The method of claim 1, wherein the routing rule specifies a
2 maximum amount of bandwidth that can be used for content delivery purposes on
3 a specific network link.

1 8. (Previously presented) The method of claim 1, wherein applying
2 routing rules to the delivery of content to the client involves:

3 attempting to receive content at the client from nodes on a local subnet;
4 if no nodes are available on the local subnet, attempting to receive the
5 content from nodes in a local arena;
6 if no nodes are available on the local arena, attempting to receive the
7 content from nodes in non-local arenas as specified by a fallback list;
8 if no nodes are available on non-local arenas, attempting to receive the
9 content from nodes that are topologically close on a router graph, wherein the
10 router graph specifies how the nodes on the network are interconnected; and
11 if no nodes are available on the router graph, attempting to receive the
12 content from an origin server.

1 9. (Original) The method of claim 8, wherein the fallback list for arenas
2 specifies an ordering of arenas.

1 10. (Currently Amended) A computer-readable magnetic or optical
2 storage medium storing instructions that when executed by a computer cause the
3 computer to perform a method for optimizing traffic on a distributed content
4 delivery network, the method comprising:
5 receiving a request for content from a client at a directory server;
6 ~~identifying the client as a potential candidate server for the requested~~
7 ~~content;~~
8 ~~adding the client to a list of potential candidate servers;~~
9 determining if the client is a member of an arena in a list of arenas,
10 wherein an arena is a specified set of nodes on a network and at least one arena
11 has a plurality of nodes; and
12 if the client is a member of the arena, applying routing rules to the
13 delivery of content to the client, ~~including routing rules specific to the~~
14 ~~arena~~ wherein the routing rules correspond to the arena;
15 wherein the routing rules involve at least one of the following:

16 directing the client to available peers within one of a set of
17 match sets for the requested content, wherein a match set is a set of
18 network devices as defined by a system administrator;
19 when there are no peers with a copy of the requested
20 content in the match set, automatically directing the client to a next
21 match set in the set of match sets; and
22 directing the peer to the origin server;
23 wherein the order of precedence in which the client is directed to
24 nodes within a match set, to a next match set, as well as to the origin
25 server in the routing rules is specified in the routing rules corresponding to
26 each arena.

1 11. (Original) The computer-readable storage medium of claim 10,
2 wherein the method further comprises defining an arena by receiving input from a
3 user and using the input to specify one or more edge routers that surround nodes
4 on the network that are members of the arena.

1 12. (Original) The computer-readable storage medium of claim 10,
2 wherein after an arena is defined, a node can be dynamically assigned to and
3 removed from the arena as the node is physically moved.

1 13. (Original) The computer-readable storage medium of claim 10,
2 wherein the method further comprises defining an arena by receiving input from
3 an administrator and using the input to specify a list of addresses for nodes that
4 comprise the arena.

1 14. (Original) The computer-readable storage medium of claim 10,
2 wherein a routing rule can prohibit traffic across a specific network link.

1 15. (Original) The computer-readable storage medium of claim 14,
2 wherein a routing rule can prohibit traffic across a specific network link when the
3 network link reaches a predetermined utilization.

1 16. (Original) The computer-readable storage medium of claim 10,
2 wherein the routing rule specifies a maximum amount of bandwidth that can be
3 used for content delivery purposes on a specific network link.

1 17. (Original) The computer-readable storage medium of claim 10,
2 wherein applying routing rules to the delivery of content to the client involves:
3 attempting to receive content at the client from nodes on a local subnet;
4 if no nodes are available on the local subnet, attempting to receive the
5 content from nodes in a local arena;
6 if no nodes are available on the local arena, attempting to receive the
7 content from nodes in non-local arenas as specified by a fallback list;
8 if no nodes are available on non-local arenas, attempting to receive the
9 content from nodes that are topologically close on a router graph, wherein the
10 router graph specifies how the nodes on the network are interconnected; and
11 if no nodes are available on the router graph, attempting to receive the
12 content from an origin server.

1 18. (Original) The computer-readable storage medium of claim 17,
2 wherein the fallback list for arenas specifies an ordering of arenas.

1 19. (Currently Amended) An apparatus for optimizing traffic on a
2 distributed content delivery network, comprising:
3 a receiving mechanism configured to

4 receive a request for content from a client at a directory server;
5 ~~identify the client as a potential candidate server for the requested content;~~
6 ~~and~~
7 ~~add the client to a list of potential candidate servers;~~
8 a determination mechanism configured to determine if the client is a
9 member of an arena in a list of arenas, wherein an arena is a specified set of nodes
10 on a network and at least one arena includes a plurality of nodes; and
11 a routing mechanism configured to apply routing rules to the
12 delivery of content to the client, ~~including routing rules specific to the~~
13 ~~arena~~, if the client is a member of the arena,
14 wherein the routing rules correspond to the arena;
15 wherein the routing rules involve at least one of the following:
16 directing the client to available peers within one of a set of
17 match sets for the requested content, wherein a match set is a set of
18 network devices as defined by a system administrator;
19 when there are no peers with a copy of the requested
20 content in the match set, automatically directing the client to a next
21 match set in the set of match sets; and
22 directing the peer to the origin server;
23 wherein the order of precedence in which the client is directed to
24 nodes within a match set, to a next match set, as well as to the origin
25 server in the routing rules is specified in the routing rules corresponding to
26 each arena.

1 20. (Original) The apparatus of claim 19, further comprising a definition
2 mechanism configured to define an arena by receiving input from a user and using
3 the input to specify one or more edge routers that surround nodes on the network
4 that are members of the arena.

1 21. (Previously Presented) The apparatus of claim 19, wherein the routing
2 rules specific to the arena include one or more of: an order of precedence for
3 fallback within match sets, an order of precedence for fallback between match
4 sets, identification of sets to avoid, and rules for when to return to an origin
5 server.

1 22. (Original) The apparatus of claim 19, wherein after an arena is
2 defined, a node can be dynamically assigned to and removed from the arena as the
3 node is physically moved.

1 23. (Original) The apparatus of claim 19, further comprising a definition
2 mechanism configured to define an arena by receiving input from an
3 administrator and using the input to specify a list of addresses for nodes that
4 comprise the arena.

1 24. (Original) The apparatus of claim 19, wherein a routing rule can
2 prohibit traffic across a specific network link.

1 25. (Original) The apparatus of claim 24, wherein a routing rule can
2 prohibit traffic across a specific network link when the network link reaches a
3 predetermined utilization.

1 26. (Original) The apparatus of claim 19, wherein the routing rule
2 specifies a maximum amount of bandwidth that can be used for content delivery
3 purposes on a specific network link.

1 27. (Original) The apparatus of claim 19, wherein the routing mechanism
2 is further configured to:

3 attempt to receive content at the client from nodes on a local subnet;

4 attempt to receive the content from nodes in a local arena if no nodes are
5 available on the local subnet;
6 attempt to receive the content from nodes in non-local arenas as specified
7 by a fallback list if no nodes are available on the local arena;
8 attempt to receive the content from nodes that are topologically close on a
9 router graph if no nodes are available on non-local arenas, wherein the router
10 graph specifies how the nodes on the network are interconnected; and
11 attempt to receive the content from an origin server if no nodes are
12 available on the router graph.

1 28. (Original) The apparatus of claim 27, wherein the fallback list for
2 arenas specifies an ordering of arenas.